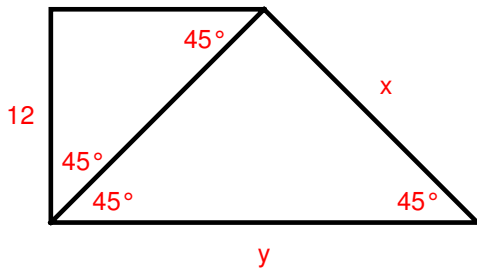


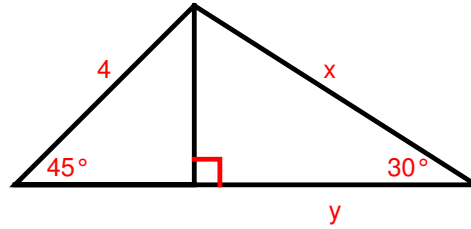
## Worksheet 6.3: Special Right Triangles

Find the values of  $x$  and  $y$  in each diagram.

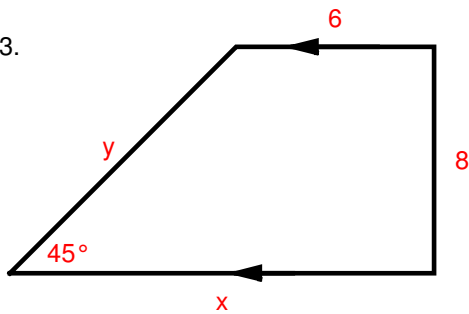
1.



2.



3.



4. The diagonals of a square are 10 units long. Find the length of a side of the square.

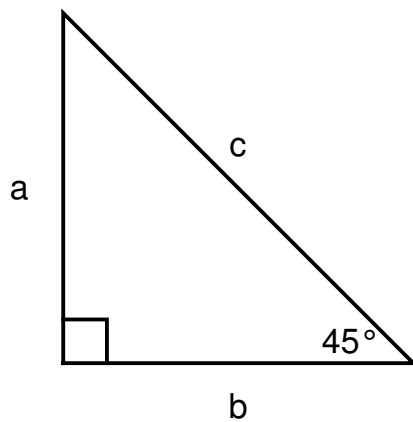
5. Find the length of a diagonal of a square whose perimeter is 36.

6. An altitude of an equilateral triangle has length  $6\sqrt{3}$ . What is the perimeter of the triangle.

7. Find the altitude of an equilateral triangle if each side is 10 units long.

8. If the measures of the angles of a triangle are in the ratio 1 : 2 : 3, are the lengths of the sides in the same ratio?

Use the figure below to complete the each exercise.



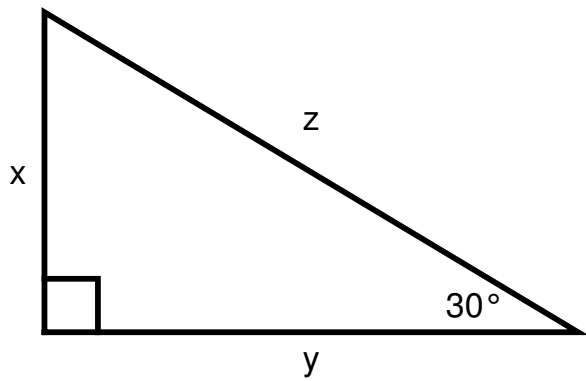
9. If  $a = 8$ , then  $c =$  \_\_\_\_\_.

10. If  $b = 2\sqrt{3}$ , then  $c =$  \_\_\_\_\_.

11. If  $c = \sqrt{5}$ , then  $a =$  \_\_\_\_\_.

12. If  $c = 12$ , then  $b =$  \_\_\_\_\_.

Use the figure below to complete each exercise.



13. If  $x = 10$ , then  $y =$  \_\_\_\_\_ and  $z =$  \_\_\_\_\_.

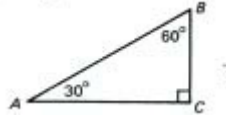
14. If  $y = 10$ , then  $x =$  \_\_\_\_\_ and  $z =$  \_\_\_\_\_.

15. If  $z = 12$ , then  $x =$  \_\_\_\_\_ and  $y =$  \_\_\_\_\_.

16. If  $z = 4\sqrt{6}$ , then  $x =$  \_\_\_\_\_ and  $y =$  \_\_\_\_\_.

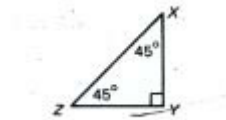
## Special Right Triangles Worksheet

Exercises 1-6 refer to the 30-60-90 triangle. Using the given information, find the indicated length.



1.  $AB=14$ ;  $BC=$
2.  $BC=7$ ;  $AB=$
3.  $BC=8$ ;  $AC=$
4.  $AB=16$ ;  $AC=$
5.  $AC=9\sqrt{3}$ ;  $BC=$
6.  $AC=4\sqrt{3}$ ;  $AB=$

Exercises 7-12 refer to the 45-45-90 triangle. Using the given information, find the indicated length.



7.  $XY=7$ ;  $XZ=$
8.  $YZ=10$ ;  $XZ=$
9.  $XZ=11\sqrt{2}$ ;  $YZ=$
10.  $XZ=10$ ;  $XY=$
11.  $YZ=7\sqrt{2}$ ;  $XZ=$
12.  $XZ=12$ ;  $YZ=$

13. The length of the hypotenuse of a 30-60-90 triangle is 20. What is the length of the shorter leg?

14. A ladder leaning against a wall makes a 60 angle with the ground. The base of the ladder is 3 m from the building. How high above the ground is the top of the ladder?